



Late Holocene fishing strategies in southern Africa as seen from Likoaeng, highland Lesotho

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ARTICLE INFO

Article history:

Received 10 May 2010

Received in revised form

12 July 2010

Accepted 12 July 2010

Keywords:

Fishing

Late Holocene

Hunter-gatherer

Southern Africa

Lesotho

Neoglacial

ABSTRACT

The open-air campsite of Likoaeng in the eastern highlands of Lesotho, southern Africa, preserves an extensive record of fishing activity by late Holocene hunter-gatherers. This paper reports the results of the analysis of the enormous fish assemblage recovered from its excavation. Fishing appears to have become more important from the start of the late Holocene neoglacial, c. 1000 cal. BC, with people camping at Likoaeng to intercept seasonal spawning runs of two species, *Labeo capensis* (the Orange River mudfish) and *Labeobarbus aeneus* (the smallmouth yellowfish). The latter dominates in the lower part of the sequence, with the former becoming dominant after 560 cal. BC. As a result, the focus of occupation probably shifted from high summer to spring. Estimates of Standard Length show that some fish were significantly larger than historically recorded maxima, but there is no sign that human predation affected fish size. The massive quantities of fish taken suggest that people may have used seasonally predictable spawning events as a focus for social aggregation. While there is no evidence for fish being preserved or removed off-site, the strong focus on fishing at Likoaeng strengthens the case for intensified hunter-gatherer interest in freshwater resources in southern Africa during the late Holocene.

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1. Introduction

The exploitation of freshwater fish has attracted archaeological attention as a possible signal of increasing dietary breadth, a signature of seasonal occupation, a potential promoter of social aggregation, a component of a more delayed return economy capable of sustaining increased residential sedentism and an indicator of past ecological conditions (e.g. Jousse et al., 2008; Pöllath et al., 2008; Van Neer, 2008; Prendergast and Lane, 2010). We explore these possibilities here with respect to Likoaeng, a late Holocene archaeological site in the highlands of eastern Lesotho that has produced an exceptionally large and stratigraphically well-controlled fish assemblage, exceeding in size even those known from the Late Palaeolithic/Epipalaeolithic of the Nile Valley (Van Neer, 2004). Its analysis provides insights into how hunter-gatherers exploited this region of southern Africa during and after the climatic downturn of the late Holocene neoglacial c. 3000–2000 BP.

2. The Likoaeng site

Likoaeng (29°44'08"S, 28°45'47"E) lies approximately 1725 m above mean sea level on the south side of the confluence formed by the stream of that name with the Senqu (Orange) River, close to the village of Sehonghong (Fig. 1). Uniquely for the southern African interior it combines a multi-occupation Later Stone Age (LSA) open-air sequence with high quality faunal preservation (Mitchell, 2009; Mitchell et al., 2006, 2008; Plug et al., 2003). Excavations in 1995 and 1998 proceeded stratigraphically to a maximum depth of 4.5 m below the modern surface, opening up a total area of 30 m² (reducing to 3.5 m² in Layers XII–XVIII) equivalent to perhaps one-sixth of the site's surviving size. The area excavated backed on to a sandstone outcrop within which a now-buried rockshelter was occupied early in the site's history (Figs. 2 and 3). Except for culturally sterile layers and the 1995 component of Layer I (where a 5 mm mesh was employed), all excavated sediment was dry-sieved through a 2 mm sieve. All faunal material found in sieving was retained.

Excavated units were grouped into layers differentiated by changes in colour and texture. Layers were numbered from I (the youngest occupation) to XVIII (culturally sterile sands at the sequence's base); Layer 0 encompasses the sterile topsoil overlying

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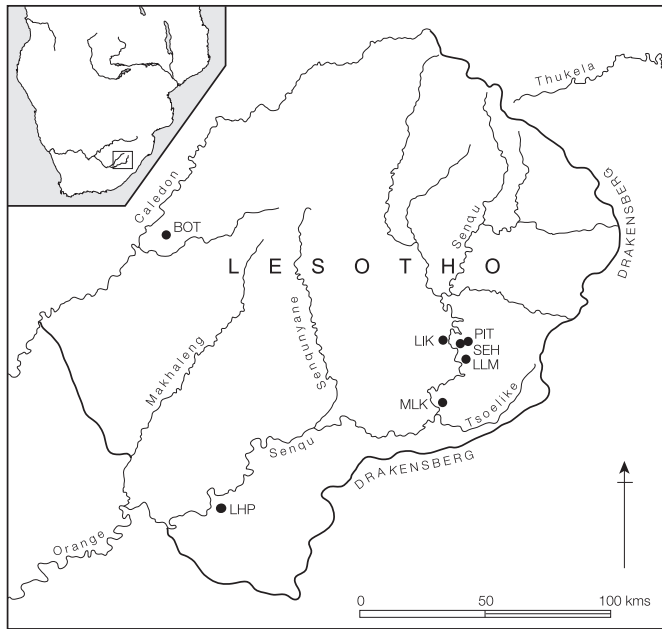


Fig. 1. Southern Africa showing the location of Likoeng and other sites mentioned in the text. Site names are abbreviated thus: BOT Botsabelo; LHP Likhohlong-ha-Piti; LIK Likoeng; LLM Lehaha la 'Masekou; MLK Melikane; PIT Pitsaneng; SEH Sehohong.

Layer I. Variation in the densities of flaked stone artefacts, bone, charcoal and excavated features identifies Layers I, III, V, VII/IX, XI, XIII, XIV, XV and XVII as the main occupation phases at Likoeng. Layers 0, II, IV, VI (to at least some degree), X, XII and XVI, by contrast, are interpreted as periods when people were effectively absent from the site. Seventeen radiocarbon determinations set the maximum duration for human activity at 1700 cal. BC to 900 cal. AD (Table 1).

3. Methods

Faunal remains were analysed by Plug, aided by comparative collections in the South African Institute for Aquatic Biodiversity, the Transvaal Museum, the Royal Museum of Central Africa,

Belgium, and the Department of Archaeology, University of Newcastle upon Tyne. Pending the establishment in Lesotho of a functioning national museum, the archaeological samples are kept at the Department of Archaeozoology, Transvaal Museum, and the Institute of Archaeology, University of Oxford.

Identifications were made using criteria and terminology previously reported by Plug (2005, 2008). Most bones of the neurocranium, cranium and pectoral and pelvic girdles, as well as the first dorsal spines, some pterygiophores and the first three or four vertebrae were identifiable to genus and most also to species. The remaining vertebrae, ribs, intermusculars and fin elements were not identifiable, unless found in close association with, or articulating to, elements that could be determined to species level. Discussion of skeletal element representation will appear elsewhere (Plug, in press). Species abundance was quantified by estimating the number of identified specimens (NISP) and the minimum number of individuals (MNI) for each taxon. All bones, including those left unidentified, were weighed. Where possible bones were measured with a vernier calliper accurate to 0.1 mm using published criteria (Morales and Rosenlund, 1979; Farquharson, 1980; Leach and Davidson, 2000). Standard Length (SL) for each species was estimated using procedures discussed by Plug (2008). Plug and Mitchell (2008) provide background on the ecology of the taxa present.

4. Results

4.1. Taphonomy and agents of accumulation

The Likoeng fish assemblages are well preserved, with most cranial and postcranial skeletal elements well represented. Some bones appear to have been articulated when deposited and rare partly articulated sequences were recognised in excavation (Fig. 4). Although this recalls some natural accumulations (Butler, 1993; Zohar et al., 2001), the samples cluster with mammal bones, stone artefacts and other products of human activity, including hearths in some layers, and come almost entirely from these compacted occupation horizons (Table 2), showing that they are not a natural death assemblage. Compatible with the very limited evidence of post-depositional stratigraphic disturbance reported earlier (Mitchell, 2009), no sorting of fish bones by size is evident.



Fig. 2. Likoeng: view of the site at the close of excavation in 1998, looking upstream along the Senqu River. The buried rockshelter is visible at the far left of the excavation area.

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